

# Cheese Making

By: Amanda Titus



# What is Raw Milk?

- Comes directly from a farm animal and is filtered and cooled before use
- It is not pasteurized, so it has a higher vitamin content than heat-treated milk
- Pathogens may be found in the milk such as Mycobacterium, brucella, and salmonella
- All cases of salmonella outbreaks in the past two decades have been in pasteurized milks because of the lack of cleanliness in factories
- U.S. federal law dictates that raw-milk cheese made to sell must be aged longer than 60 days to prevent the development of pathogenic bacteria

# What is Homogenized Milk?

- It has been heat-treated and pressurized
- Doing this breaks up the butterfat globules into very small particles so that they are distributed evenly throughout the milk
- This milk produces a curd that is smoother and less firm than that of raw milk, so most people add calcium chloride to the cheese
- It also requires up to twice the amount of rennet as does raw milk
- Farm-fresh milk does not have to be homogenized, but store bought is usually pasteurized and homogenized

# Pasteurized Milk

- This milk has been heat-treated to destroy pathogens
- It kills all bacteria, which is why it is necessary to add bacterial starter to cheeses
- Pasteurization makes proteins, vitamins, and milk sugars less available, and it destroys the enzymes that help the body to assimilate them



# Ultra-Heat-Treated (UHT)/ pasteurized Milk

- Heat-treated milk at ultra high temperatures (275 to 300 degrees) make it possible to keep milk for several months prior to opening
- This makes it possible for large milk companies to buy out small local farmers because they can transport the milk across the country
- The protein in the milk is completely denatured and it is just as well to drink water
- These milks come in foil-lined containers that are generally boxes; "organic" doesn't mean healthy



# History of Cottage Cheese

- Originated in eastern and central Europe
- Was popular in colonial America
- Name from the fact that it was made in local cottages
- Other names for it are "Farmer cheese" and "Pot Cheese" (because it is made in a pot)

Was made from raw milk poured into a pot and set in a fairly warm spot

The bacteria and the high levels of lactic acid from the unpasteurized milk turned the milk protein into soft white curds

Could be sliced and warmed to 100 degrees for several hours for sour tasting cheese

- Could drain curds without cooking for a lactic acid type of cheese
- Or the curds were pressed after cooking to produce "farmer cheese"

# Small-Curd Cottage Cheese (Yield: 1.5 pounds)

## Ingredients

- 1 gallon pasteurized milk
- 1/8 teaspoon calcium chloride diluted in 1/4 cup water (if using store-bought milk)
- 1 packet direct-set mesophilic starter
- 1-2 tablespoons heavy cream (optional)
- cheese salt (optional)



# Cooking the Curds

Steps 1-7 (Altered for Length)

1. Heat the milk to 72 degrees. Add calcium chloride.
2. Add the starter. Cover and let set at 72 degrees for 16-24 hours.
3. Cut the curd into 1/4-inch cubes and set for 15 minutes.
4. Increase the heat by one degree per minute until it reaches 100 degrees.
5. Maintain temperature for 10 minutes.
6. Increase temperature to 112 over a 15-minute period.
7. Maintain temperature for 30 minutes.





# Finishing The Cottage Cheese

Steps 8-14

8. Let curds settle.
9. Pour off the whey and put curds into a colander lined with cheesecloth and tie it up. Dip the curds in cool water for a less sour cheese.
10. Drain the bag for several minutes.
11. Rinse the bag in ice water to cool and drain the bag for 5 minutes.
12. Untie the bag and place the curds in a bowl. Add heavy cream to produce a creamier texture.
13. Add salt to taste.
14. Store in fridge up to a week.



# The Cottage Cheese Experience

## Flaws

- I pressed the cheese at the end of the process, without instruction to. This caused the cheese to end up a little dry.
- I added a bit more cheese salt than I meant to.

## Successes

- I learned that to keep the cheese at 72 degrees for 16-24 hours I did not have to keep the burner going, I just had to keep the cheese in a warm room.
- I was able to keep the temperature increases very gradual and accurate.

# History of Mozzarella Cheese

- First made by the monks of San Lorenzo di Capua, Italy, from sheep's milk
- In 16th century water buffalo were introduced to Naples and the rich milk of those animals started to be used



# 30-minute Mozzarella (3/4-1 pound)

## Ingredients

- 1.5 teaspoons citric acid dissolved in 1/2 cup cool water
- 1 gallon pasteurized whole milk
- 1/4 teaspoon liquid rennet diluted in 1/4 cup cool water
- 1 teaspoon cheese salt (optional)



# Cooking The Curds

Steps 1-5 (Altered for Length)

1. Stir in citric acid solution to the milk at 55 degrees
2. Heat milk to 90 degrees
3. Stir in diluted rennet while heating milk to between 100-105 degrees. Turn off heat.
4. After five minutes the curds will look like thick yogurt and have a shine. The whey will be clear.
5. Scoop out curds and put into a microwavable bowl. Press curds with hands and pour off whey.



# Finishing Mozzarella Cheese

## Steps 6-9

6. Microwave curds for 1 minute and drain excess whey. Fold cheese over with hands or a spoon.

7. Microwave two more times for 35 seconds each. Add salt after the second time. Knead after each time.

8. Knead quickly until it is smooth and elastic. Reheat if the curds start to break apart.

9. Roll the cheese together. Eat warm or place them in a bowl of ice water for 1/2 hour to cool the cheese evenly.



# The Mozzarella Experience

## Flaw

- I attempted to make a second batch with local farm milk, but I heated it to 120 degrees (15 degrees over desired temperature). The curds did not come together and they were of the consistency of ricotta cheese. The heat killed all of the bacteria that helped to produce nice curds.

## Success

- The first batch of cheese I made with store bought milk came out really well and tastes good!



# The History of Chèvre

- Chèvre is the french word for "goat"
- The flavor specific to goat cheese comes from the fatty acids capric, caproic, and caprylic.
- Goat's milk doesn't contain carotene which produces a white cheese.
- It is said that goats were brought to France by the Moors in the 8th century.
- It is one of the popular cheeses made in France.





# Chèvre (1.5 pounds)

## Ingredients

- 1 gallon pasteurized whole goat's milk
- 1 packet direct-set chèvre starter



# Cooking and Draining the Curds

## Steps 1-4

1. Heat the milk to 86 degrees. Add the starter and stir to combine.
2. Cover and let set at a room temperature above 72 degrees for 12 hours.
3. Line a colander with butter muslin. Ladle the curds into the colander. tie the corners of the muslin into a knot and hang the bag over the sink for 6-12 hours. (A shorter time produces a cheese spread; a longer time makes cream cheese-type consistency.)
4. Store in a covered container in the fridge for up to a week.



# The Chèvre Experience

## Flaw

- The only regret I have about making this cheese was not adding some herbs to give it a different flavor.

## Successes

- This was a very simple cheese to make.
- I think having the farm-fresh milk made the cheese taste fresh and very goat-like.

# Where the Ingredients Came from

Cow's Milk: Store Bought

Goat's Milk: Gemini Health Emporium (Produced Locally)

Cheese Cultures: Mesophilic Starter, Chevre Starter

Cheese Rennets: Liquid Animal Rennet

Cheesemaking Additives: Citric Acid, Calcium Chloride,  
Cheese Salt

<http://www.cheesemaking.com/>

Watch Video "Ricki Carroll Artist and Cheesemaker"

# My Interview with Ricki Carroll

## Question and Answer Highlights

Do you believe that spreading cheesemaking techniques is important to continue culture?

Any lost art brings a person in more of a balance with nature and that is important. I feel that what I have brought to this country and to the world is very important and it is spreading like wildfire, so I guess it is important to many others as well. We currently have over 80,000 people reading our monthly online newsletter and ship over 300 orders a day to customers around the world.

I know that you have a farm where you collect fresh milk for your cheese, is this an important factor in cheesemaking?

We do not have our own animals anymore. We use milk that is locally produced in our town for our cheese making. Again, the fresher the better.

Could the everyday consumer find enough time to make cheese?

Yes, some of the soft cheeses take 10 minutes of work